No. 50.—Broadcasting Power.

BY A. HYATT VERRILL

Expert on Radio Technology. When the news was flashed recentwithat the battleship Iowa would be controlled solely by radio on her journey to destruction, few realized the real significance of the gigantic

experiment. Not a single officer or man was aboard the giant vessel, yet smoothly she was guided through channels,

But, you ask, how may the operator be sure that he is sending an impulse which would turn the rudder to the left and not to the right? If you look at the accompanying diagram you will see that the amplifier of the radio set connects with a small relay, which in turn operates a large relay, by means of a magnet, which pulls down an arm or lever. At one end is a pawl bearing upon a rachet wheel and each time the large relay magnet pulls down the lever the pawl turns the rachet wheel one notch. But, you ask, how may the oper

ly she was guided through channels, past buoys and far into the ocean, just as though manned by one of Uncle Sam's ablest crews.

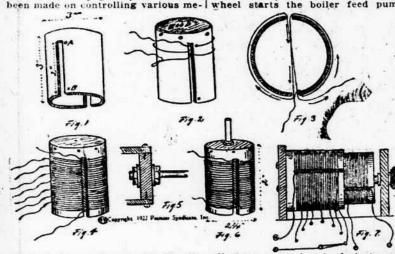
One single man guided the ship's destiny, and he was not aboard, but far away on shore, seated comfortably in a little room miles distant, presumably toying with a radio instrument. From this unpretentious setting, giant waves of power were sent out to guide the engines, control the propeller, and guide the great ship to her destination.

Long before the lowa set forth on her crewless voyage, experiments had been made on controlling various method.

The pawl turns the rachet wheel is a switch with numerous contact points and each of these is, in turn, connected to the controls of the engines, rudders, fuel-feeding devices, boiler pumps, lights, etc. The operator naturally knows the mechanisms controlled by each point of the switch and the number of teeth in the rachet wheel, which must be moved to bring any point in contact, consequently he can control everything.

Notched Wheel Controls.

For example, if one tooth of the wheel starts the boiler feed pump,



chanical devices by means of radio.
Clocks had been stopped and started, incandescent lights turned on and off, and miniature boats maneuvered by means of wireless. The lowa's cruise was the greatest achievement of its kind yet accomplished by radio.

Endion Made It Possible.

The vacuum tube with its amplifying powers played an inportant part in the remarkable feat—indeed, it was the vacuum tube which made it possible. With the tube an electrical device known as a "relay" was used. This is an apparatus by means of which a weak electrical current can be made to control a strong current, and it is widely used in many other electrical devices. A number of relays are oftimes used to control one piece of machinery, the weakest relay controlling a still larger one, and so on until the desired strength is gathered. Thus you can understand that by means of amplifying tubes the weak radio signals may be built up until they produce a current strong enough to operate a relay which, in turn, may be arranged to control the heaviest machinery of a battleship.

Change and started, one impulses through the relays, thus met electrical motors, start pumping the water into the boilers. Again, the operator has the stop the rachet wheel one notch. Instantly the rachet wheel one notch. Instantly the feed pumps, operated by electrical motors, start pumping the water into the boilers. Again, the operator may wish to stop the ship. He knows that the renther and to stop the ship. He knows that there notches of the wheel control into the boilers and valves in the beight mater and to stop the ship. He knows that there notches of the wheel one notch. Instantly the feed pumps, operated by electrical motors, start pumping the water into the boilers. Again, the operator may wish to stop the ship. He knows that there notches of the wheel control into the olicital motor, closing the great scam valves in the engine room; that three motches to stop the ship. He knows that there notches of the wheel one notches of the wheel one into the relays to

BY RADIO TODAY Complete Programs of Radio

Broadcasting Stations.

meters. 15 to 11:20 a.m.—Hog flash—

p.m.-Wholesale dairy report on

WPM—Thomas J. Williams, Inc. (360 Meters).

12:30 p.m.—News items; reports on olen automobiles.

VMU-Doubleday-Hill Electric Co.

WVP—United States Signal Corps, Bedloes Island, N. Y. (1.450 Meters —Eastern Daylight-Saving Time—

8:50 p.m.—Instruction in radio. 9 p.m.—Concert. WGI—Amrad, Medford Hillside, Mass. (360 Meters — Eastern Daylight-Saving Time—Deduct One Hour). NAA-Naval Radio Station, Radio, Va.

8:45 to 9 a.m.—Live stock receipts; live stock markets.

10 a.m.—Weather forecast for New England, New York, Pennsylvania, New Jersey, Maryland, the District of Columbia, North and South Carolina, Georgia. Florida, Alabama, Mississippi, Tennessee, Kentucky, West Virginia and Ohio on 2,950 meters.

10:30 a.m.—Meteorological report on 5.350 meters. 2:55 p.m.—Music; current events. 3:30 p.m.—Music and talks as an-3:30 p.m.—Music and talks as announced by radiophone.
7:30 p.m.—Base ball scores; latenews flashes.
7:30—Bedtime story—"Some Ways of the Dandelion" (Oliver P. Jenkins), road by Miss Marion W. Parker, instructor of arts, Brookline High School.

School. 8.00—Signor Giovanni Petrucci, Chicago and St. Louis.

11:20 to 11:40 a.m.—Fruit and vegetable shipments.

Noon—Time signal; weather report and ship orders on 2,650 meters.

8.00—Signor Giovanni Petrucci. operatio baritone. "Ombra mais fu" (Handel); "How Do I Love Thee" (Ware); "Liebstraum Valse" (Moszkowski), piano solo. "The Golden Calf" (Gounod): "The Lost Chord" (Sulli-

van); "La Reveille de Printemps" (Frink), piano solo. "You and I" (Ward). able markets. 2:25 to 2:55 p.m.—Crop reports and 8:30 — Walter C. Keylor, enter-ainer. Piano selections: "Enter-

8:30 — Walter C. Keylor, entertainer. Piano selections: "Entertainer's Rag," "Barn Dance Medley." introducing famous jigs and reels; "Stars and Stripes Forever," Irish Ballad, "Monah Is Calling," Violin impersonation: "Cavatina." with own piano accompaniment. Songs: "It's Your Winning Ways" and "Autumn Time." Hawaiian guitar imitations. "Honolulu March." "Kohla March." "Waltz Medley," "Hawaiian Nights." By request: "Hilo March." Ballad: "Flow'r of Lot." Impersonation of Victor Record: "The Shiek," Ballad: "Your're the Same Old Southern Mammy." to 4:15 p.m.-Hay and feed markets.

5 p.m.—Weather report.

5:30 to 6 p.m.—Daily marketgram.

10 p.m.—Time signal; weather report; ship orders; 2,650 meters.

10:30 p.m.—Naval press news on 2,650 meters.

Except where noted, sending is CW 5,250 meters. 10 a.m.—Weather report for the District of Columbia, Pennsylvania, thio, Maryland, Virginia and West

YW—Westinghouse. Chicago (360 Meters — Central Daylight - Saving Time, Same as Eastern Standard Time). vegetables) on 1,100 meters.

12:30, 2:15 and 3:30 p.m.—C. W. marketgram telegrams on 1,980 me-

9:25 a.m.—Opening market quotations, Chicago Board of Trade.
10 a.m.—Market quotations at one-half-hour intervals until 1 p.m.
1:20 p.m.—Closing market quota-

1.160 meters by radiophone.
7:30 and 8 p.m.—Market report on 1.160 meters by radiophone.
8:50 p.m.—Weather report. tions.

2:15 p.m.—News and market report.

3 p.m.—American and National
League base ball team line-ups;
progress of games every half hour
thereafter until their close.

4:15 p.m.—News; market and stock

reports.
6:30 p.m.—News; final market and financial reports; base ball reports.
8 p.m.—Program arranged through courtesy of Lyon & Healy, concert and artists' department: Mabel Burriss Swanstrom, soprano: Lucille Korts, violinist; Masie Odell Cardy, accompanist, and Harriet Aries, reader.

WMI—Doubleday-Hill Electric Co.

(30 Meters).

(30 to 5:30 p.m.—Base ball scores and the following musical programs are and the following musical programs are all programs and the following musical programs are all programs and the following musical programs and artists department: Mabel Buristee Wild Rose, 'violin (MacDowell). The publion. plano (Lavallee): "Lo. Hear the seed of the program of MacDowell." The papillon. plano (Lavallee): "Lo. Hear the seed of the program of MacDowell." The papillon. plano (Lavallee): "Lo. Hear the seed of the program of MacDowell." The program of MacDowell." The program of MacCowell." "Vale, Parwell." (D'Arcy-Russell): "Rhaber of Jersew Me With a Smile (Burtsett): "Gypay Serenade" (Valdet).

(Burtsett): "Gunden of MacCowell." (Serenation of MacCowe

RADIO RALF-

elty Entertainers. 2:30 p.m.—Base ball scores by innings. 6 p.m.—Theatrical features; base

7 p.m.—"Garden and Home fying." Mrs. J. B. McFate, Creek, Pa., chairman Valley planning Association and member of the National Women's Farm and Garden

Association. 8 p.m.—Elizabeth Reese Lloyd, so-prano, Ben Avon Methodist Church;

WWJ-The Detroit News (360 Meters) 9:30 a.m.-"Tonight's Dinner," and special talk by the Household

editor,
9:40 a.m.—Music reproduced.
10:15 a.m.—Weather (485 meters).
11:52 a.m.—Time.
12:05 p.m.—Music reproduced.
3:30 p.m.—Weather (485 meters).
3:45 p.m.—Markets.
5 p.m.—Sport results.
7:00 p.m.—The Detroit News Orchestra; the Town Crier; the Players' Club.

WBZ - Westinghouse. Springfield. light-Saving Time - Deduct One

7:30 p.m.—Base ball scores; bed-time stories for children. 7:45 p.m.—Lecture and market re-8 p.m.-Program of music; base

WGR-Federal Telephone and Tele-graph Company, Buffalo, N. Y. (Eastern Daylight-Saving Time-Deduct One Hour). Noon-Weather and market reports

Noon—Weather and market reports (485 meters).
5:30 p.m.—Weather and market reports (485 meters).
8 p.m.—Base ball scores; bedtime stories for children; digest of day's news (360 meters).
8:15 p.m.—Concert by Federal Telephone and Telegraph Company (360 meters).

LEGAL NOTICES

TO THE POLICYHOLDERS OF THE PRUDENTIAL INSURANCE COMPANY OF AMERIC.

INSURANCE COMPANY OF AMERIC.

NOTICE is hereby given that a meeting of the policyholders of THE PRUDENTIAI.

INSURANCE COMPANY OF AMERICS.

will be held at the Home Office of said Company in the City of Newark, New Jersey, on Monday, the Fourth day of December, 1922, at twelve o'clock noon, for the purpose of selecting four persons to be voted for by the policyholders' Trustee as members of the Board of Directors at the annual election of Directors of the Company, to be held on the Eighth day of January, 1923.

At such meeting every policyholder of the corporation who is of the age of twenty-one years of upwards and whose policy has been

years or upwards and whose policy has been in force for at least one year last past shall be entitled to cast one vote in person or by proxy. EDWARD D. DUFFIELD, Acting Pres.

PEYTON GORDON and J. H. BIL-BREY, Attorneys.

Hour).

ball scores.

ball scores.
6 p.m.—Weekly dress talk.



FAVOR BIG IRRIGATION.

Senators Vote \$100,000 for Survey of Columbia Basin.

The Senate committee on irrigation and reclamation yesterday ordered favorably reported a bill directing Secretary Fall to survey and report to Congress by January I, 1924, on all essential features of the proposed only 6,000,000 inhabitants.

\$100,000 to finance the survey and reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. Is made to the Senate within a reagain yesterday by Senator Harrison. 8 p.m.—Elizabeth Reese Lloyd, soprano, Ben Avon Methodist Church; Mary Austraw, contralto, Highland Presbyterian Church; George Thomas, tenor, Eleventh U. P. Church, and Robert Johns, baritone, Fourth Presbyterian Church, Prize winners at the Youngstown, Ohio, Elsteddfod.

Program:—Soprano solos—"I Wili Extol Thee," (Eli). Costa; "The Wind's in the South," South; contralto solos—"His Lullaby," Bond; "The Old-fashioned Town," Squire. Tenor solos—"Thine," Rhys Herbert; "Sailor's Grave," Sullivan, Baritone solo—"Invictus," Huhn, Quartette—"What From Vengeance," Donizetti; "Japanese Sandman," Borsford; "Good Night, Dawn Dur Wedding Day," Pretheroe; "Flow Gently, Deva," Dr. Parry, Flute solo—"Concertino," Chaminade.

Washington state.
The bill as originally introduced by Senator Poindexter, republican, was practically redrafted by the commit-tee, but carried the Washington sena-tor's request for an appropriation of \$100,000 to finance the survey and re-

Columbia basin irrigation project, in HARRISON WANTS NAMES. utive for the names of the persons Demands President Furnish List

Senate Requested.

appointed to office by executive order. "I submit that a resolution adopted nearly three months ago unanimously should be heeded," said Sen-

Complaint was voiced in the Senate ator Harrison. "Unless some report

A SECTION AND A SECTION AND ASSESSMENT OF THE PARTY OF TH

LOOK AT THAT SCENE!

ISN'T IT BEAUTIFUL ?-

WE MUST LIVE ON A FARM

SOMEDAY!

CAPT. GHERARDI ASSIGNED.

BY JACK WILSON.

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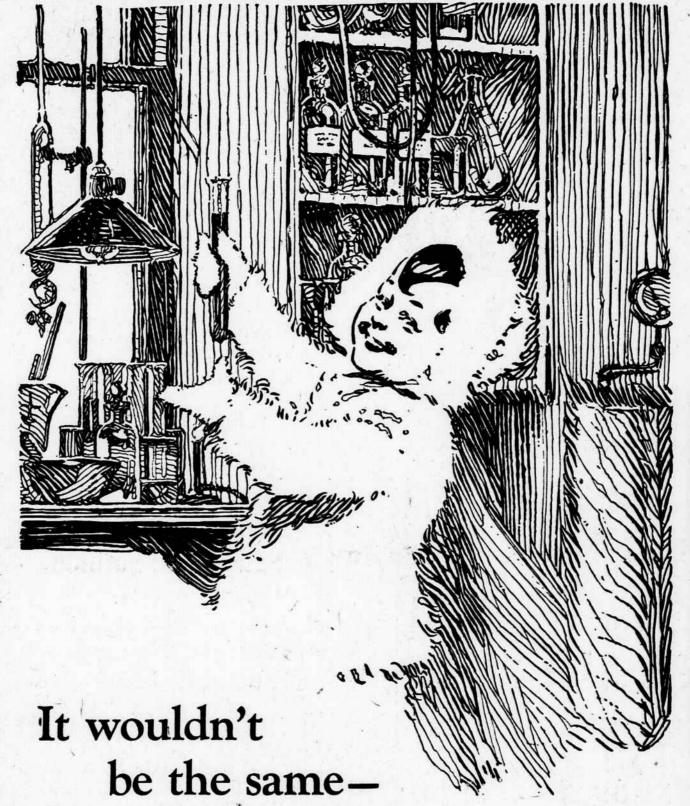
YES -AND WE MUST BE

PROGRESSIVE TOO -AND HAVE

ELECTRIC FANS LIKE THOSE FOR

OUR COWS!

Capt. Walter R. Gherardi has been relieved from duty in the bureau of navigation, Navy Department, and assigned to the command of the air squadrons, Atlantic fleet, on the U. S. S. Wright. He will relieve Capt. Alfred W. Johnson, who will take his place in the bureau of navigation.



"If every woman on the street Should make a loaf of bread, They wouldn't be the same at all," The Master Baker said. "Some loaves would burn, and some would fall, And some would not be good; Though each one used the self-same flour And did the best she could."

ND there's no secret about making Clicquot Club Ginger Ale. We tell what we put in it. Other manufacturers know all the ingredients we They can buy most of them.

But they don't make Clicquot Club-any more than a woman with good flour and a recipe can make bread which tastes like her neighbor's bread made with the same flour and recipe. We have one decided advantage over other ginger-ale makers. All the water we use is pure, cold spring water, drawn from the bed-rock. Nature has filtered and re-filtered it.

The carbonation of this water and the flavoring with Jamaica ginger, fruit juices, and sugar make the happy blend that is never duplicated except by us. It is almost a universal taste.

Why, then, should you drink other ginger ales if you can get Clicquot Club? Ask your grocer to send you a case. Keep a few bottles on ice or in a cold place. Serve it any time to anyone. They all like it.

THE CLICQUOT CLUB CO., Millis, Mass., U. S. A.



Clicquot Club

Ginger Ale Sarsaparilla. Birch Beer Root Beer

GINGER